

ABSTRACT OF THE DISCLOSURE

A method of forming a memory cell with a single sided buried strap. A collar oxide layer is formed on the sidewall of a trench. A conductive layer fills the trench. The conductive layer and the collar oxide layer are partially removed to form an opening having first and second sidewalls. The remaining collar oxide layer is lower than the remaining conductive layer. An angle implantation with F ions is performed on the first sidewall. A thermal oxidation process is performed to form a first oxide layer on the first sidewall and a second oxide layer on the second sidewall. The first oxide layer is thicker than the second oxide layer. The second oxide layer is removed to expose the second sidewall. A buried strap is formed at the bottom of the opening, insulated from the first sidewall by the first oxide layer.